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OFFICE OF THE SECRETARY

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Melissa E. Newman
Vice President-Federal Regulatory

Ex Parte

May 25, 2001

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 12th Street SW, TW-A325
Washington, DC 20554

RE: CC Docket No. 98-147

Dear Ms. Salas:

On Monday, May 21, 2001, Robert "Bob" McKenna, Gary Fleming, Mary Retka, Bill Johnston, Barry Orrel and the undersigned, representing Qwest[1], met with the Federal Communications Commission staff members Brent Olson, Katherine Farroba, Aaron Goldberger, William Kehoe III, Jessica Rosenworcel and Elizabeth Yockus of the Common Carrier Bureau's, Policy and Program Planning Division, and Dennis Johnson and Rodney McDonald of the Office of Network Services Division. The purpose of the meeting was to discuss advanced services at remote locations. The attached material was distributed at the meeting and served as the basis of the discussion.

In accordance with Section 1.1206(b)(2) of the Commission's rules, the original and two copies of this letter and attachment are being filed with your office for inclusion in the public record of this proceeding.

No. of Copies rec'd 0+2
List A B C D E

[1] On June 30, 2000, U S WEST, Inc., the parent and sole shareholder of U S WEST Communications, Inc., merged with and into Qwest Communications International Inc. Further, on July 6, 2000, U S WEST Communications, Inc. changed its name to Qwest Corporation.

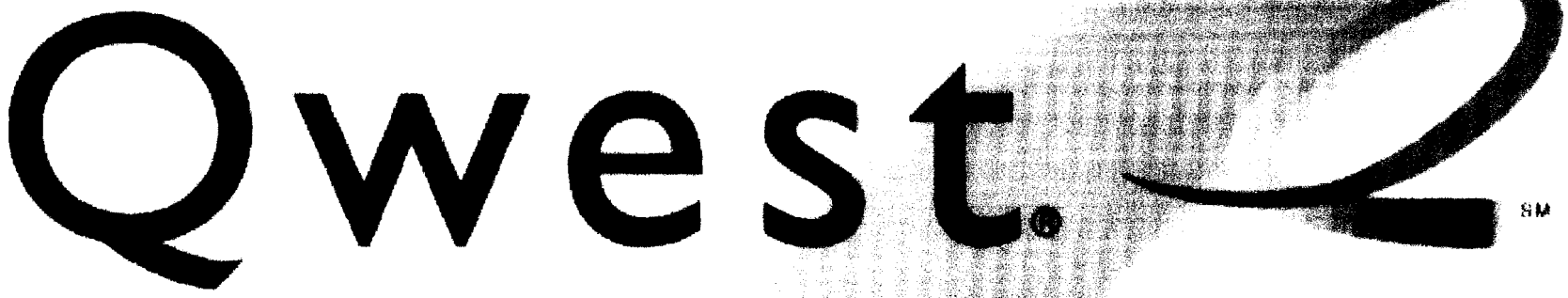
Acknowledgment and date of receipt of this submission are requested. A duplicate of this letter is included for this purpose.

Sincerely,

Melissa E. Newman

Attachment

cc: Katherine Farroba
Aaron Goldberger
Dennis Johnson
William Kehoe, III
Rodney McDonald
Brent Olson
Jessica Rosenworcel
Elizabeth Yockus



Qwest's Remote DSL Deployment: Architectures, Market Dynamics and Costs

Melissa Newman
Gary Fleming
Bill Johnston
Bob McKenna
Barry Orrel
Mary Retka

Qwest Ex Parte
May 21, 2001
Remote DSL Deployment

Purpose:

- Review the technical realities of current DSL technology
- Compare Qwest's remote deployment of DSL with SBC's Project Pronto
- Consider Marketplace Dynamics
- Examine Costs of Remote Deployment

Qwest.

DSLAM Functionality

- A DSLAM uses packet technology to transport data between subscriber Personal Computers and service providers or corporate Local Area Network gateways.
- The routing and addressing for a customer virtual circuit is done through the entire network using these components:
  - ISP router or server
  - Service provider's packet network and DSLAM
  - Public network loop connection,and
  - End user's customer premise equipment.
- The control card is the focal point for the operation, maintenance and provisioning of xDSL services.

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Three Key Components of Remotely Deployed DSL

Line Card

- Provides the DSL high frequency interface with the customer loop
- Contains the hardware and software for xDSL i.e. modem function

Control Card

- Functionally controls and manages the DSLAM
- Supports addressing and routing with the DSLAM

Trunk Card (a/k/a Transport Card)

- Provides the interface with the packet network

All of these cards are housed in shelves that share a power supply and a common network management system.

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Remote DSLAM Limitations

- Finite number of line ports.
- Trunk side of the DSLAM can only support a finite number of ADSL customers, based on careful traffic engineering of the trunk card and the connectivity to the ATM.
- Cabinet size and environment.
- Bandwidth available between the RT and the packet network.
- Speed offered to the end user depends on the quality and length of the copper loop.

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Today's DSLAM Technical Limitations

- There are no universally adopted standards that support interchangeable DSLAM components.
- Card equipment is vendor specific and highly proprietary.
- Multiple carrier access is currently only available via virtual channels.

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Today's DSLAM Technical Limitations (continued)

- Currently there is no "universal card" to provide a combination of loop concentration and high-speed access.
- Card-at-a-Time collocation is not viable due to the need to share the trunk and control card functionality.
- Plug-and-Play is a CPE concept. It is inappropriate in the context of shared network elements.

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Today's DSLAM Technical Limitations (continued)

- The control cards are static and cannot be partitioned.
- While most DSLAMs can support various qualities of service, e.g., unspecified bit rate (UBR) and variable bit rate (VBR), Qwest's current packet network will not support these classes of service without upgrades to both software and hardware.
- The manufacturers of Qwest's DSLAMs have their own network management systems which cannot be partitioned to permit multiple carrier access.
- Line cards in a DSL system have multiple ports. If a card is not fully used, there is stranded efficiency.

Today's DSLAM Technical Limitations (continued)

Spectrum Management Considerations

- Performance of central office-based ADSL systems may be significantly degraded when cross talk from remote ADSL deployments is encountered.
- Cross-talk may result when customers whose loops are in the same distribution cable (binder group) are served both from central office-based and remote ADSL deployments.
- The rate at which cross-talk occurs is not yet fully known, but it is expected to vary from region to region and even locality to locality.

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Qwest-SBC Comparison

Qwest Remote DSL Deployment (Data Only)	*SBC – Project Pronto (Voice and Data)*
Deployed at the FDI ▫ Serves approximately 400 homes ▫ Point of cross-connection ▫ Avoids spectral interefence problems with CO-based xDSL services	Deployed at the Remote Terminal of the Digital Loop Carrier System ▫ Serves 3-5 SAIs ▫ Each SAI can serve 200 – 600 homes
Initial Deployment Uses a Lucent Stinger Stand-alone Cabinet ▫ Deployed next to the existing cross-connect box	Deploys or retrofits an Alcatel Litespan 2000 RT with ADSL Line Unit Cards (ADLU) (Combo-Cards) ▫ Combo Card combines xDSL modem with the POTS line splitter ▫ These are the only cards that can be installed
▫ Each Line Card serves either 24 or 48 customers	▫ Each Line card serves 2 or 4 customers
▫ DSLAM holds 7 Line Cards	▫ DSLAM holds 168 Line Cards

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Qwest Remote DSL

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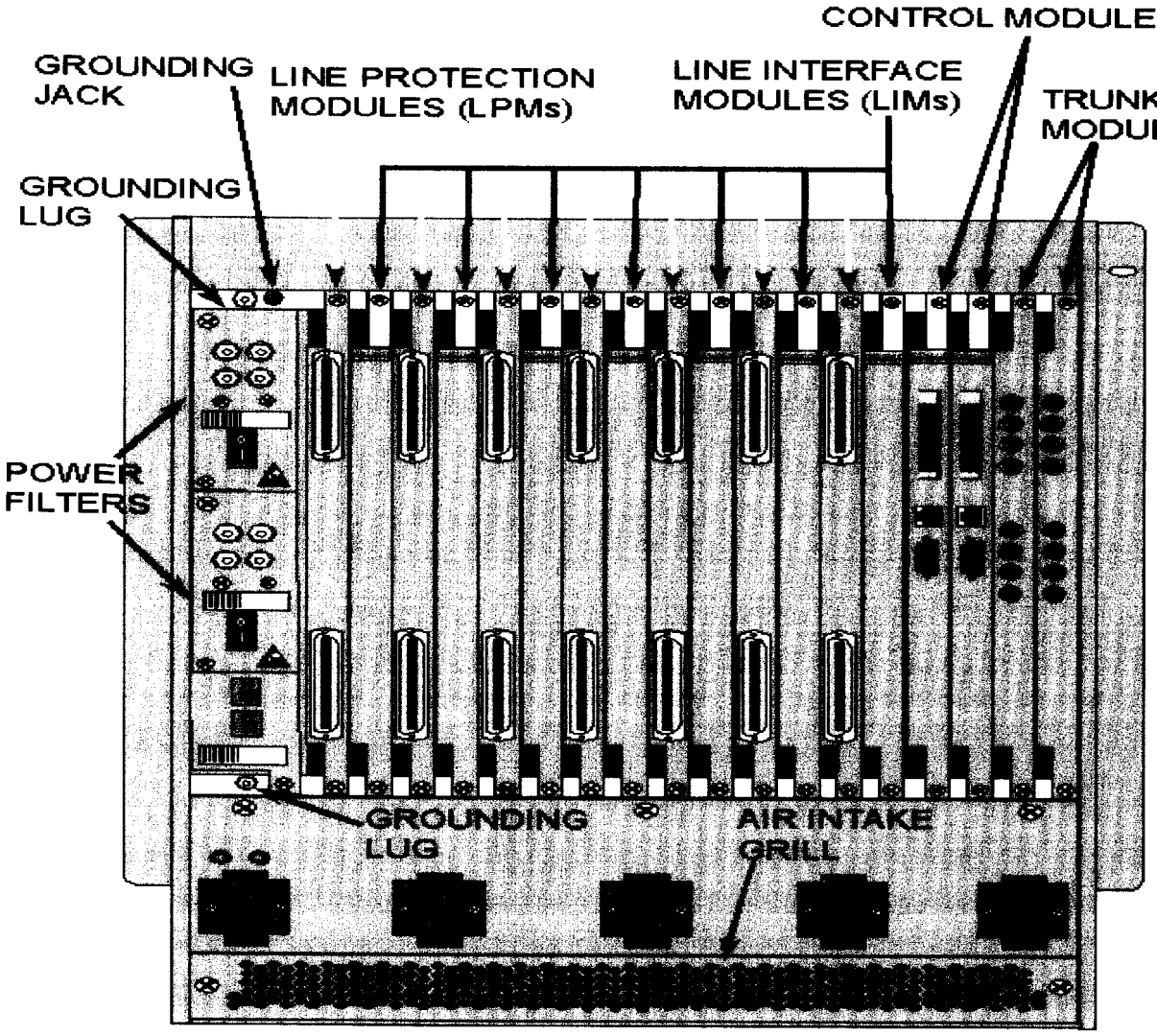
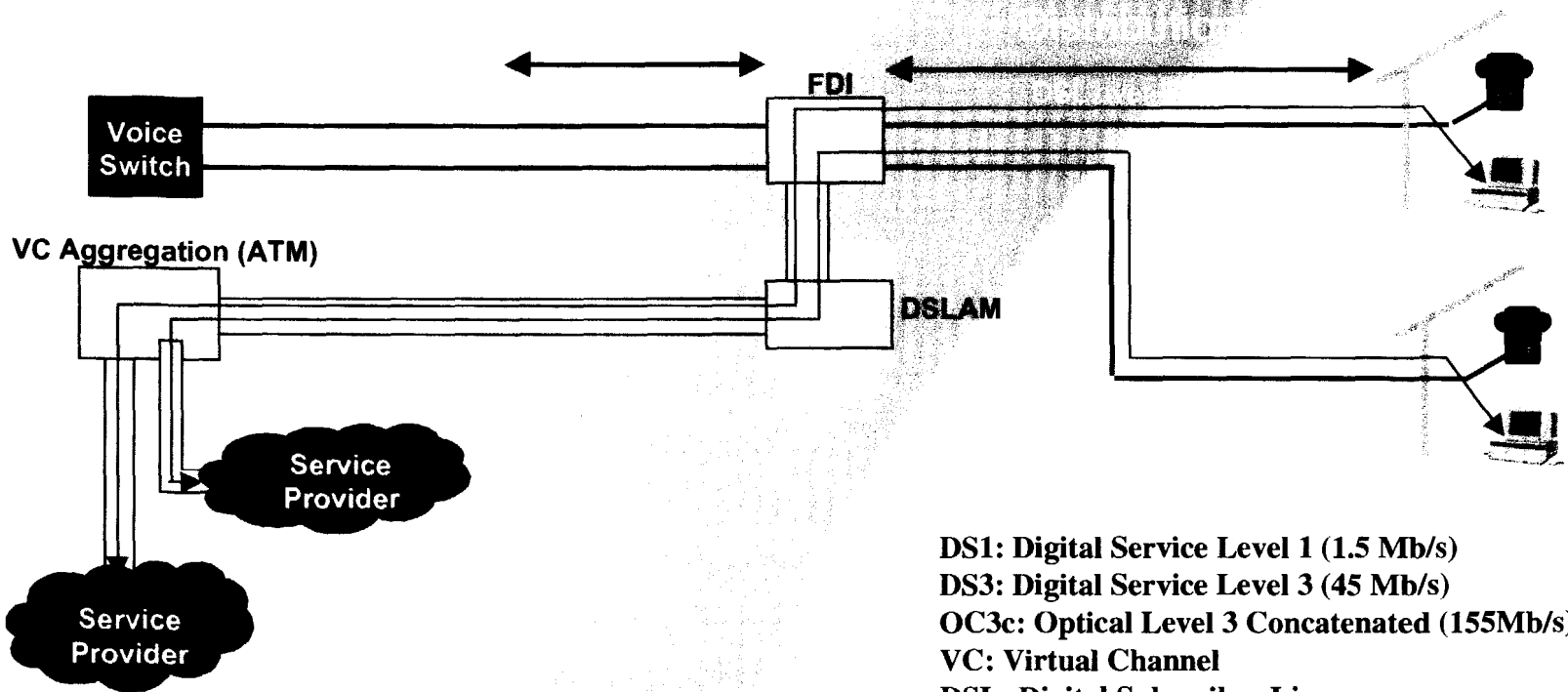


Qwest Remote DSL Configuration



DS1: Digital Service Level 1 (1.5 Mb/s)
DS3: Digital Service Level 3 (45 Mb/s)
OC3c: Optical Level 3 Concatenated (155Mb/s)
VC: Virtual Channel
DSL: Digital Subscriber Line
POTS: Plain Old Telephone Service
FDI: Feeder Distribution Interface

DSLAM in a stand-alone cabinet.
Splitters are placed in a separate shelf

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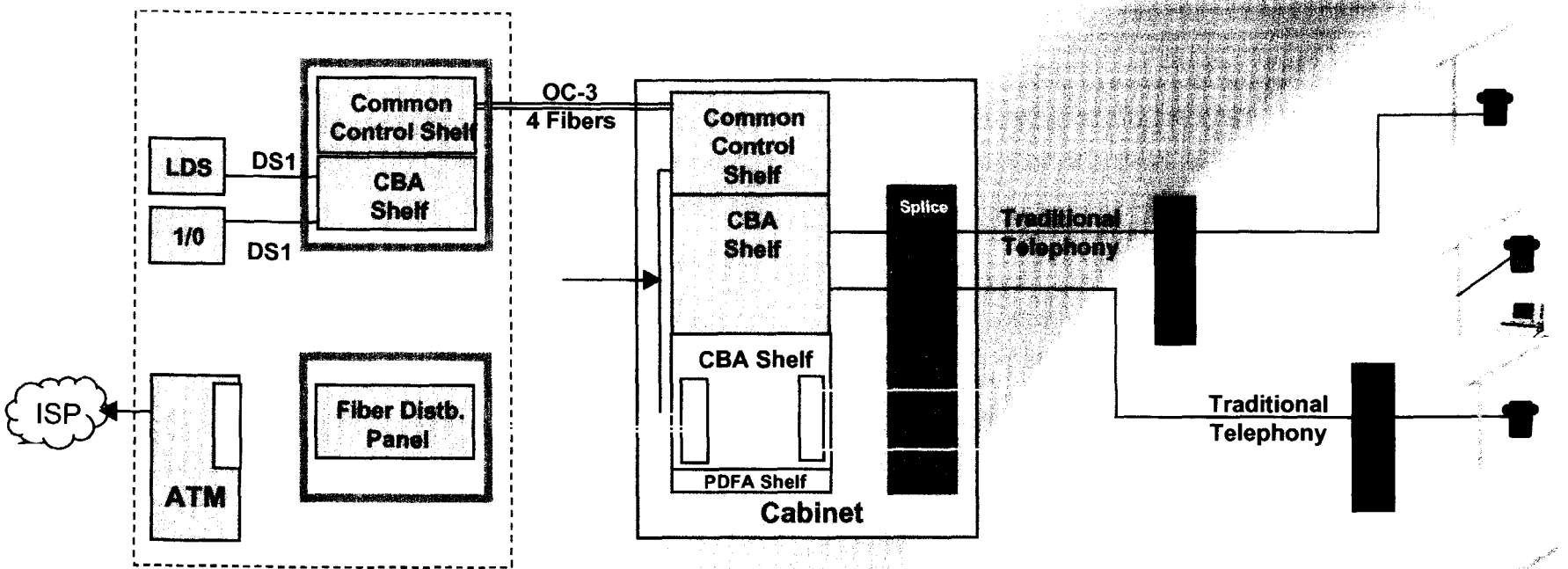
SBC Project Pronto Configuration

Alcatel Litespan Using Combo Cards With Dedicated DSL Shelf



Litespan 2000 Remote Terminals (RTs) with the ADSL Digital Line Unit (ADLU) card.

LDS: Local Digital Switch
CBA: Channel Bank Assembly
ISP: Information Service Provider
ATM: Asynchronous Transfer Mode
POTS: Plain Old Telephone Service
ABCU: ATM bank Control Unit
ADLU: Asymmetric DSL Line Unit

PDFA: Power Distribution and Fan Assembly
SAI: Serving Area Interface
RADSL: Rate Adaptive Digital Subscriber Line
DA: Distribution Area

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The DSL and Cable Modem Marketplace

Total Customers 2000

- DSL: 1.7 million
- Cable Modem: 3.7 million

Projected Customers 2005

- DSL: 10.5 million
- Cable Modem: 15.1 million

Source: "Residential Broadband: Cable Modem and DSL Reach Critical Mass", The Yankee Group, March 2001

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DSL and Cable Modem Service Attributes Comparison

DSL	Cable Modem
▫ Rides over existing copper loops	▫ Shared cable infrastructure
▫ Basic Service is 256/640 KBPS	▫ Basic Service can be up to 30 MBPS downstream, but declines as number of subscribers in neighborhood log on
▫ Self Install Available	▫ This option is not available
▫ Dedicated/Always on Service	▫ Dedicated/Always on Service
▫ Distance Limitations ▫ Choice of multiple ISPs	▫ Distance Limitations ▫ Bundled with ISP and must subscribe separately for different ISP,e.g., AOL

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DSL and Cable Modem Regulatory Issues Comparison

DSL	Cable Modem
▫ Regulated under Title II	▫ Regulated under Title VI
▫ Price Regulated by FCC	▫ Not price regulated
▫ Available to All Resellers, Competitors and ISPs	▫ Available only to end users and not to any competitors ▫ Very recently initiated trials to enable ISPs to reach cable modem end users
▫ Certain network elements available to competitors at TELRIC rates	▫ Infrastructure not available to any competitors

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DSL and Cable Modem Pricing Comparison

DSL

- Qwest basic rate is: $29.95 Qwest DSL Deluxe (does not include ISP charge)
- SBC Basic rate is: $49.95 (includes ISP charge)

Cable Modem

- Basic rate for ATT is $45.95 (includes the ISP) *(effective June 2001)*
- Basic rate for Cox is $34.95 (includes the ISP)

Qwest.

Remote Deployment of DSL Service Cost Issues

- Deploying DSL at Remote Terminals is expensive.
- Rapid deployment of DSL must consider current state of the network.
- Any strategy for deploying DSL must consider costs and speed to market consequences if it is to be successful.
- The current Qwest approach to deploying DSL maximizes our ability to reach additional customers.

Qwest

Remote Deployment of DSL Is Expensive

Remote DSL is costly for all providers, not just DLECs and CLECs

CLECs & DLECs claim the cost of remotely deploying DSL equipment will slow their entry into the market:

> *"The record here and in related proceedings demonstrates that remote terminal collocation, where available, is prohibitively expensive." AT&T Reply Comments in CC Dkt. Nos. 98-147 and 96-98; Deployment of Advanced Services and Implementation of Local Competition(page 15).*

All LECs face the same cost constraints:

- DLECs/CLECs can have access to the remote cabinets at TELRIC
- TELRIC is at or below the cost the ILEC incurs to deploy its own equipment

Successful widespread deployment of DSL service must place a high priority on cost containment

Qwest

Cost Containment is Critical to a Successful Deployment

- Cable Modem Sets Prices in the Market
- Margins on Remotely Deployed DSL are thin

Current Qwest DSL Rate	$29.95
TELRIC of Providing Remote DSL Service	$23.00 to $25.00

- Cable Modem Rates Reduce Ability to Increase Prices to Cover Added Costs

Cable Modem Rate	$45.95
Less: Internet Service	$19.50
Estimated Price of Cable Modem Bandwidth	**$26.45**

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Deployment Must Consider Current State of the Network

Current network characteristics limit deployment options

- Many options require fiber to the remote terminal
- Many options require placing new integrated high cost terminals

Speed to market depends on minimizing the additional build requirements

- Replacing feeder investment would significantly delay deployment
- Replacing existing terminals would add additional cost and time to the deployment

Speed to market is critical to the success of our DSL strategy

Qwest

Qwest Strategy for Deploying Remote DSL

- Place cabinets in new builds that have the capability to house both DSL and Voice equipment.
- Use an overlay technology for deployment of remote DSL in existing service areas.
- Work with vendors to get the best price for equipment.

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Cabinets Placed in New Builds

- In new builds cabinets are placed primarily to serve the voice network but will include the capability to house DSL equipment for CLECs and the ILEC.
  - DSL shelf will only be deployed when it is financially viable.
- Placing integrated cabinets allows Qwest to capitalize on the costs that must be incurred to provide voice service.
- Placing capability to add DSL equipment allows for speed to market when adequate demand materializes.

Qwest

Use an Overlay Technology in the Existing Network

- Use an overlay technology for deployment of remote DSL in existing service areas.
  - Allows Qwest to capitalize on existing investment.
  - Minimizes costly and time consuming replacements of large portions of the network.
- Increases speed to market.
- Meets financial requirements for deployment.

Qwest

Get Optimal Terms & Conditions and Selected Vendor

- Obtain a price that allows for a potentially profitable deployment.
- Minimize up-front investment by having vendor "put some skin in the game".
- Five vendors solicited.

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Advantages of Qwest Strategy

- Speed to Market
- Financially Viable
- Flexible
- Distributes Cost of Deployment Over Time

Qwest

Options for Deploying DSL in Qwest's Network

- Qwest's overlay remote DSL deployment is 75% to 100%+ more expensive than incremental central office deployment.
- To rebuild the network to place integrated cabinets that can house both DSL and voice equipment would increase the remote deployment costs by 30% to 70%.
- Strong customer penetration is critical to the financial viability of remote DSL deployment.

Qwest

What the Future Holds

- Qwest is always looking for the most cost efficient means of deploying new technology.
- Qwest is always looking for next generation platforms that will deploy greater capabilities at a financially viable cost.
- Placing the latest financially viable new technologies that meets the markets needs is one of Qwest's never ending goals.

Qwest